

SEQUENCE LISTING

5 <110> Herr, John C.
 Norton, Elizabeth J.
 Deikman, Alan B.

10 <120> Recombinant Antibody Directed Against Human Sperm
 Antigen

<130> 00415-02

15 <140>
 <141>

<150> 60/145,512
 <151> 1999-07-23

20 <160> 18

<170> PatentIn Ver. 2.1

25 <210> 1
 <211> 116
 <212> PRT
 <213> Mus musculus

<400> 1

30 Asp Ile Glu Leu Thr Gln Ser Pro Phe Ser Leu Pro Val Ser Leu Gly
 1 5 10 15

Gly Pro Ala Ser Ile Ser Cys Arg Ser Ser Gln Ser Leu Val His Ser
 20 25 30

35 Asn Arg Asp Thr Tyr Leu His Trp Phe Leu Gln Lys Pro Gly Gln Ser
 35 40 45

Pro Glu Leu Leu Ile Tyr Arg Val Ser Asn Arg Phe Ser Gly Val Pro
 40 50 55 60

Asp Arg Phe Ser Gly Ser Gly Ser Gly Thr Asp Phe Thr Leu Lys Ile
 65 70 75 80

-2-

Ser Arg Val Glu Ala Glu Asp Leu Gly Val Tyr Phe Cys Ser Gln Ser
85 90 95

Thr His Val Pro Phe Thr Phe Gly Ser Gly Thr Lys Leu Glu Ile Lys
5 100 105 110

Arg Ala Ala Ala
115

10

```
<210> 2
<211> 348
<212> DNA
<213> Mus musculus
```

15

<400> 2
gacatcgagc tcaactcagtc tccattctcc ctgcctgtca gtcttgagg tccagcctcc 60

20

atctcttgca gatctagtca gagtcttgta cacagtaata gagacactta tttacattgg 120

ttcctgcaga agccaggcca gtctccagag ctctgatct acagagtttc caaccgattt 180

tctgggggtcc cagacagggt cagtggcagt ggatcagggg cagatttcac actcaagatc 240

25

agcagagtgg aggctgagga tctgggagtt tatttctgtt ctcaaagtac acatgttcca 300

ttcacgttcg gctcggggac caagctggaa atcaaacggg cggccgca 348

30

```
<210> 3
<211> 118
<212> PRT
<213> Mus musculus
```

35

<400> 3
Gln Val Lys Leu Gln Gln Pro Gly Ser Glu Pro Val Arg Pro Gly Ala
1 5 10 15

40

Ser Val Lys Val Ser Cys Arg Ala Ser Gly Tyr Lys Phe Thr Thr Tyr
20 25 30

Trp Met His Trp Val Arg Gln Arg Pro Gly Gln Gly Pro Glu Trp Ile
35 40 45

45

-3-

Gly Asp Ile Tyr Pro Gly Ser Gly Asp Ser Asn Tyr Asp Val Lys Phe
 50 55 60

Lys Asn Lys Ala Thr Leu Thr Val Asp Thr Ser Ser Ser Thr Val Tyr
 5 65 70 75 80

Ile Gln Leu Ser Ser Leu Thr Ser Glu Asp Ser Ala Val Tyr Tyr Cys
 85 90 95

10 Ala Arg Gly Asp Tyr Gly Cys Pro Phe Val Tyr Trp Gly Gln Gly Thr
 100 105 110

Thr Val Thr Val Ser Ser
 115

15

<210> 4
 <211> 354
 <212> DNA

20 <213> Mus musculus

<400> 4
 caggtgaaac tgcagcaacc tgggtctgaa ccggtgaggc ctggagcttc agtgaagggtg 60

25 tcctgcaggg cttctggcta caaattcacc acctactgga tgcactgggt gaggcagagg 120

cctggacaag gccctgagtg gattggagat atttatcctg gtagtggtga ttctaactac 180

gatgtgaagt tcaagaacaa ggccacactg actgtagaca catcctccag cacagtttac 240

30 atacaactca gcagcctgac atctgaggac tccgcgggtct attactgtgc aagagggggac 300

tatggttgcc cttttgttta ctggggccaa ggcaccacgg tcaccgtctc cagt 354

35

<210> 5
 <211> 15
 <212> PRT

40 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence:peptide linker

45

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60
61
62
63
64
65
66
67
68
69
70
71
72
73
74
75
76
77
78
79
80
81
82
83
84
85
86
87
88
89
90
91
92
93
94
95
96
97
98
99
100
101
102
103
104
105
106
107
108
109
110
111
112
113
114
115
116
117
118
119
120
121
122
123
124
125
126
127
128
129
130
131
132
133
134
135
136
137
138
139
140
141
142
143
144
145
146
147
148
149
150
151
152
153
154
155
156
157
158
159
160
161
162
163
164
165
166
167
168
169
170
171
172
173
174
175
176
177
178
179
180
181
182
183
184
185
186
187
188
189
190
191
192
193
194
195
196
197
198
199
200
201
202
203
204
205
206
207
208
209
210
211
212
213
214
215
216
217
218
219
220
221
222
223
224
225
226
227
228
229
230
231
232
233
234
235
236
237
238
239
240
241
242
243
244
245
246
247
248
249
250
251
252
253
254
255
256
257
258
259
260
261
262
263
264
265
266
267
268
269
270
271
272
273
274
275
276
277
278
279
280
281
282
283
284
285
286
287
288
289
290
291
292
293
294
295
296
297
298
299
300
301
302
303
304
305
306
307
308
309
310
311
312
313
314
315
316
317
318
319
320
321
322
323
324
325
326
327
328
329
330
331
332
333
334
335
336
337
338
339
340
341
342
343
344
345
346
347
348
349
350
351
352
353
354
355
356
357
358
359
360
361
362
363
364
365
366
367
368
369
370
371
372
373
374
375
376
377
378
379
380
381
382
383
384
385
386
387
388
389
390
391
392
393
394
395
396
397
398
399
400
401
402
403
404
405
406
407
408
409
410
411
412
413
414
415
416
417
418
419
420
421
422
423
424
425
426
427
428
429
430
431
432
433
434
435
436
437
438
439
440
441
442
443
444
445
446
447
448
449
450
451
452
453
454
455
456
457
458
459
460
461
462
463
464
465
466
467
468
469
470
471
472
473
474
475
476
477
478
479
480
481
482
483
484
485
486
487
488
489
490
491
492
493
494
495
496
497
498
499
500
501
502
503
504
505
506
507
508
509
510
511
512
513
514
515
516
517
518
519
520
521
522
523
524
525
526
527
528
529
530
531
532
533
534
535
536
537
538
539
540
541
542
543
544
545
546
547
548
549
550
551
552
553
554
555
556
557
558
559
560
561
562
563
564
565
566
567
568
569
570
571
572
573
574
575
576
577
578
579
580
581
582
583
584
585
586
587
588
589
590
591
592
593
594
595
596
597
598
599
600
601
602
603
604
605
606
607
608
609
610
611
612
613
614
615
616
617
618
619
620
621
622
623
624
625
626
627
628
629
630
631
632
633
634
635
636
637
638
639
640
641
642
643
644
645
646
647
648
649
650
651
652
653
654
655
656
657
658
659
660
661
662
663
664
665
666
667
668
669
670
671
672
673
674
675
676
677
678
679
680
681
682
683
684
685
686
687
688
689
690
691
692
693
694
695
696
697
698
699
700
701
702
703
704
705
706
707
708
709
710
711
712
713
714
715
716
717
718
719
720
721
722
723
724
725
726
727
728
729
730
731
732
733
734
735
736
737
738
739
740
741
742
743
744
745
746
747
748
749
750
751
752
753
754
755
756
757
758
759
760
761
762
763
764
765
766
767
768
769
770
771
772
773
774
775
776
777
778
779
780
781
782
783
784
785
786
787
788
789
790
791
792
793
794
795
796
797
798
799
800
801
802
803
804
805
806
807
808
809
810
811
812
813
814
815
816
817
818
819
820
821
822
823
824
825
826
827
828
829
830
831
832
833
834
835
836
837
838
839
840
841
842
843
844
845
846
847
848
849
850
851
852
853
854
855
856
857
858
859
860
861
862
863
864
865
866
867
868
869
870
871
872
873
874
875
876
877
878
879
880
881
882
883
884
885
886
887
888
889
890
891
892
893
894
895
896
897
898
899
900
901
902
903
904
905
906
907
908
909
910
911
912
913
914
915
916
917
918
919
920
921
922
923
924
925
926
927
928
929
930
931
932
933
934
935
936
937
938
939
940
941
942
943
944
945
946
947
948
949
950
951
952
953
954
955
956
957
958
959
960
961
962
963
964
965
966
967
968
969
970
971
972
973
974
975
976
977
978
979
980
981
982
983
984
985
986
987
988
989
990
991
992
993
994
995
996
997
998
999
1000

-4-

<400> 5

Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser
1 5 10 15

5

<210> 6

<211> 100

<212> DNA

<213> Artificial Sequence

10

<220>

<223> Description of Artificial Sequence:PCR primer

<400> 6

15 ggcaccacgg tcaccgtctc cagtggcggc ggcggcagcg gtggtggtgg ttctgggggc 60
ggcggcagcg acatcgagct cactcagtct ccattctccc 100

20

<210> 7

<211> 100

<212> DNA

<213> Artificial Sequence

25

<220>

<223> Description of Artificial Sequence:PCR primer

<400> 7

30 gggagaatgg agactgagtg agctcgatgt cgctgccgcc gccccagaa ccaccaccac 60
cgctgccgcc gccgccactg gagacggtga ccgtggtgcc 100

35

<210> 8

<211> 264

<212> PRT

<213> Mus musculus

40

<400> 8

Met Ala Gln Val Lys Leu Gln Gln Pro Gly Ser Glu Pro Val Arg Pro
1 5 10 15

45

-5-

Gly Ala Ser Val Lys Val Ser Cys Arg Ala Ser Gly Tyr Lys Phe Thr
 20 25 30

Thr Tyr Trp Met His Trp Val Arg Gln Arg Pro Gly Gln Gly Pro Glu
 5 35 40 45

Trp Ile Gly Asp Ile Tyr Pro Gly Ser Gly Asp Ser Asn Tyr Asp Val
 50 55 60

Lys Phe Lys Asn Lys Ala Thr Leu Thr Val Asp Thr Ser Ser Ser Thr
 10 65 70 75 80

Val Tyr Ile Gln Leu Ser Ser Leu Thr Ser Glu Asp Ser Ala Val Tyr
 15 85 90 95

Tyr Cys Ala Arg Gly Asp Tyr Gly Cys Pro Phe Val Tyr Trp Gly Gln
 100 105 110

Gly Thr Thr Val Thr Val Ser Ser Gly Gly Gly Gly Ser Gly Gly Gly
 20 115 120 125

Gly Ser Gly Gly Gly Gly Ser Asp Ile Glu Leu Thr Gln Ser Pro Phe
 130 135 140

Ser Leu Pro Val Ser Leu Gly Gly Pro Ala Ser Ile Ser Cys Arg Ser
 25 145 150 155 160

Ser Gln Ser Leu Val His Ser Asn Arg Asp Thr Tyr Leu His Trp Phe
 165 170 175

Leu Gln Lys Pro Gly Gln Ser Pro Glu Leu Leu Ile Tyr Arg Val Ser
 30 180 185 190

Asn Arg Phe Ser Gly Val Pro Asp Arg Phe Ser Gly Ser Gly Ser Gly
 35 195 200 205

Thr Asp Phe Thr Leu Lys Ile Ser Arg Val Glu Ala Glu Asp Leu Gly
 210 215 220

Val Tyr Phe Cys Ser Gln Ser Thr His Val Pro Phe Thr Phe Gly Ser
 40 225 230 235 240

Gly Thr Lys Leu Glu Ile Lys Arg Ala Ala Ala Gly Ala Pro Val Pro
 245 250 255

45

-6-

Tyr Pro Asp Pro Leu Glu Pro Arg
260

5 <210> 9
<211> 792
<212> DNA
<213> Mus musculus

10 <400> 9
atggcccagg tgaaactgca gcaacctggg tctgaaccgg tgaggcctgg agcttcagtg 60
aaggtgtcct gcagggcttc tggtacaaa ttcaccacct actggatgca ctgggtgagg 120

15 cagaggcctg gacaaggccc tgagtggatt ggagatattt atcctggtag tgggtgattct 180
aactacgatg tgaagttcaa gaacaaggcc aactgactg tagacacatc ctccagcaca 240
gtttacatac aactcagcag cctgacatct gaggactccg cggctctatta ctgtgcaaga 300

20 ggggactatg gttgcccttt tgtttactgg ggccaaggca ccacggtcac cgtctccagt 360
ggcggcggcg gcagcgggtgg tgggtggttct gggggcggcg gcagcgacat cgagctcact 420

25 cagtctccat tctccctgcc tgtcagtctt ggaggtccag cctccatctc ttgcagatct 480
agtcagagtc ttgtacacag taatagagac acttatttac attggttcct gcagaagcca 540
ggccagtctc cagagctcct gatctacaga gtttccaacc gattttctgg ggtcccagac 600

30 aggttcagtg gcagtggatc agggacagat ttcacactca agatcagcag agtggaggct 660
gaggatctgg gagtttattt ctgttctcaa agtacacatg ttccattcac gttcgggtcg 720

35 gggaccaagc tggaatatcaa acgggcggcc gcaggtgcgc cggtgccgta tccggatccg 780
ctggaaccgc gt 792

40

<210> 10
<211> 792
<212> DNA
<213> Artificial Sequence

45

<220>

<223> Description of Artificial Sequence: synthetic
sequence substituting bacterial codons for mouse
codons

5

<400> 10

atggcccagg tgaaactgca gcaacctggg tctgaaccgg tgcgccctgg cgcttcagtg 60

aaggtgtcct gccgcgcttc tggctacaaa ttcaccacct actggatgca ctgggtgcgc 120

10

cagcgccctg gccaaggccc tgagtggatt ggcgatattt atcctggtag tgggtgattct 180

aactacgatg tgaagttcaa gaacaaggcc aactgactg tagacacatc ctccagcaca 240

15

gtttacatcc aactcagcag cctgacatct gaggactccg cggtctatta ctgtgcaaga 300

ggggactatg gttgcccttt tgtttactgg ggccaaggca ccacggtcac cgtctccagt 360

ggcggcgggcg gcagcggtag tgggtggttct gggggcggcg gcagcgacat cgagctcact 420

20

cagtctccat tctccctgcc tgtcagtctt ggcgatccag cctccatctc ttgccgctct 480

agtcagagtc ttgtacacag taatcgcgac acctatctgc attggttctt gcagaagcca 540

25

ggccagtctc cagagctcct gatctaccgc gtttccaacc gcttttctgg ggtcccagac 600

cgcttcagtg gcagtggctc agggacagat ttcacactca agatcagcag cgtggaggct 660

gaggatctgg gcgtttattt ctgtttctcaa agtacacatg ttccattcac gttcggctcg 720

30

gggaccaagc tggaaatcaa acgggcggcc gcaggtgcgc cggtgccgta tccggatccg 780

ctggaaccgc gt

792

35

<210> 11

<211> 251

<212> PRT

40

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: synthetic
sequence substituting amino acids in the natural
mouse protein to "humanize" the protein

45

<400> 11

Met Ala Gln Val Gln Leu Gln Gln Ser Gly Ala Glu Val Lys Lys Pro
 1 5 10 15
 5 Gly Ala Ser Val Lys Val Ser Cys Lys Ala Ser Gly Tyr Thr Phe Thr
 20 25 30
 Thr Tyr Trp Met His Trp Val Arg Gln Ala Pro Gly Gln Gly Leu Glu
 10 35 40 45
 Trp Ile Gly Asp Ile Tyr Pro Gly Ser Gly Asp Ser Asn Tyr Asp Val
 50 55 60
 15 Lys Phe Lys Asn Arg Val Thr Ile Thr Ala Asp Thr Ser Thr Ser Thr
 65 70 75 80
 Ala Tyr Met Gln Leu Ser Ser Leu Arg Ser Glu Asp Thr Ala Val Tyr
 85 90 95
 20 Tyr Cys Ala Arg Gly Asp Tyr Gly Cys Pro Phe Val Tyr Trp Gly Gln
 100 105 110
 Gly Thr Thr Val Thr Val Ser Ser Gly Gly Gly Gly Ser Gly Gly Gly
 25 115 120 125
 Gly Ser Gly Gly Gly Gly Ser Asp Ile Val Met Thr Gln Ser Pro Ser
 130 135 140
 30 Ser Leu Pro Val Ser Val Gly Asp Pro Ala Ser Ile Ser Cys Arg Ser
 145 150 155 160
 Ser Gln Ser Leu Val His Ser Asn Arg Asp Thr Tyr Leu His Trp Tyr
 165 170 175
 35 Leu Gln Lys Pro Gly Gln Ser Pro Gln Leu Leu Ile Tyr Arg Val Ser
 180 185 190
 Asn Arg Phe Ser Gly Val Pro Asp Arg Phe Ser Gly Ser Gly Ser Gly
 40 195 200 205
 Thr Asp Phe Thr Leu Lys Ile Ser Arg Val Glu Ala Glu Asp Val Gly
 210 215 220

-9-

Val Tyr Tyr Cys Ser Gln Ser Thr His Val Pro Phe Thr Phe Gly Gln
 225 230 235 240

5 Gly Thr Lys Val Glu Ile Lys Arg Ala Ala Ala
 245 250

<210> 12

<211> 753

10 <212> DNA

<213> Artificial Sequence

<220>

15 <223> Description of Artificial Sequence: synthetic
 sequence substituting human codons for mouse
 codons

<400> 12

20 atggcacaag ttcagttaca acagtctggt gcagaagtta aaaaacctgg tgcttctggt 60
 aaagtttctt gcaaagcttc tggttatacc ttaccacgt attggatgca ttgggttcgt 120
 caagctcctg gtcaaggtct ggaatggatt ggtgatattt atcctgggtc tggtgattct 180
 25 aattatgatg ttaaatttaa aaatcgtgtt accattaccg ctgatacctc tacctctacc 240
 gcttatatgc aattatctag cttacgttct gaagataccg cagtttatta ttgtgcacgt 300
 ggtgattatg gttgtccttt tgtttattgg ggtcaaggca ccacgggttac cgtttctagc 360
 30 ggtggcggcg gttctggcgg tggcggtagc ggcggtggtg gctctgatat tgttatgacc 420
 caatctcctt ctagcttacc tgtttctggt ggtgatcctg ctagcatttc ttgtcgttct 480
 35 agccaatctt tagttcatag caatcgtgat acctatttac attggtatct gcagaaacct 540
 ggtcaaagcc ctcaattact gatttatcgt gtttagcaatc gtttttagcgg tgttcctgat 600
 cgtttttctg gtagcgggtc tggtagcgat ttacggttaa aaatttctcg tgttgaagct 660
 40 gaggatgttg gtgtttatta ttgttctcaa agcaccatg ttccttttac gttcgggtcaa 720
 ggtaccaaag ttgaaattaa acgtgctgca gct 753

45

<210> 13

<211> 45

<212> DNA

5 <213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:nucleic acid
linker

10

<400> 13

ggcggcgggcg gcagcgggtgg tgggtggttct gggggcgggcg gcagc

45

15

<210> 14

<211> 13

<212> PRT

<213> Artificial Sequence

20

<220>

<223> Description of Artificial Sequence:commercially
available petide antigen

25

<400> 14

Gly Ala Pro Val Pro Tyr Pro Asp Pro Leu Glu Pro Arg

1

5

10

30

<210> 15

<211> 251

<212> PRT

<213> Mus musculus

35

<400> 15

Met Ala Gln Val Lys Leu Gln Gln Pro Gly Ser Glu Pro Val Arg Pro

1

5

10

15

Gly Ala Ser Val Lys Val Ser Cys Arg Ala Ser Gly Tyr Lys Phe Thr

40

20

25

30

Thr Tyr Trp Met His Trp Val Arg Gln Arg Pro Gly Gln Gly Pro Glu

35

40

45

45

-11-

Trp Ile Gly Asp Ile Tyr Pro Gly Ser Gly Asp Ser Asn Tyr Asp Val
 50 55 60

5 Lys Phe Lys Asn Lys Ala Thr Leu Thr Val Asp Thr Ser Ser Ser Thr
 65 70 75 80

Val Tyr Ile Gln Leu Ser Ser Leu Thr Ser Glu Asp Ser Ala Val Tyr
 85 90 95

10 Tyr Cys Ala Arg Gly Asp Tyr Gly Cys Pro Phe Val Tyr Trp Gly Gln
 100 105 110

Gly Thr Thr Val Thr Val Ser Ser Gly Gly Gly Gly Ser Gly Gly Gly
 115 120 125

15 Gly Ser Gly Gly Gly Gly Ser Asp Ile Glu Leu Thr Gln Ser Pro Phe
 130 135 140

Ser Leu Pro Val Ser Leu Gly Gly Pro Ala Ser Ile Ser Cys Arg Ser
 20 145 150 155 160

Ser Gln Ser Leu Val His Ser Asn Arg Asp Thr Tyr Leu His Trp Phe
 165 170 175

25 Leu Gln Lys Pro Gly Gln Ser Pro Glu Leu Leu Ile Tyr Arg Val Ser
 180 185 190

Asn Arg Phe Ser Gly Val Pro Asp Arg Phe Ser Gly Ser Gly Ser Gly
 195 200 205

30 Thr Asp Phe Thr Leu Lys Ile Ser Arg Val Glu Ala Glu Asp Leu Gly
 210 215 220

Val Tyr Phe Cys Ser Gln Ser Thr His Val Pro Phe Thr Phe Gly Ser
 35 225 230 235 240

Gly Thr Lys Leu Glu Ile Lys Arg Ala Ala Ala
 245 250

40

<210> 16
 <211> 753
 <212> DNA
 <213> Mus musculus

45

-12-

<400> 16
atggcccagg tgaaactgca gcaacctggg tctgaaccgg tgaggcctgg agcttcagtg 60
aaggtgtcct gcagggcttc tggctacaaa ttcaccacct actggatgca ctgggtgagg 120
5 cagaggcctg gacaaggccc tgagtggatt ggagatattt atcctggtag tgggtgattct 180
aactacgatg tgaagttcaa gaacaaggcc aactgactg tagacacatc ctccagcaca 240
10 gtttacatac aactcagcag cctgacatct gaggactccg cggtctatta ctgtgcaaga 300
ggggactatg gttgcccttt tgtttactgg ggccaaggca ccacggtcac cgtctccagt 360
ggcggcgggcg gcagcgggtg tgggtggttct gggggcgggcg gcagcgacat cgagctcact 420
15 cagtctccat tctccctgcc tgtcagtctt ggaggtccag cctccatctc ttgcagatct 480
agtcagagtc ttgtacacag taatagagac acttatttac attggttcct gcagaagcca 540
20 ggccagtctc cagagctcct gatctacaga gtttccaacc gattttctgg ggtcccagac 600
aggttcagtg gcagtggatc agggacagat ttcacactca agatcagcag agtggaggct 660
gaggatctgg gagtttattt ctgtttctcaa agtacacatg ttccattcac gttcggctcg 720
25 gggaccaagc tggaaatcaa acgggcggcc gca 753

30 <210> 17
<211> 786
<212> DNA
<213> Artificial Sequence
35 <220>
<223> Description of Artificial Sequence: synthetic
sequence substituting bacterial codons for mouse
codons

40 <400> 17
caggtgaaac tgcagcaacc tgggtctgaa ccggtgcgcc ctggcgcttc agtgaagggtg 60
tcctgccgcg cttctggcta caaattcacc acctactgga tgcactgggt gcgccagcgc 120

-13-

cctggccaag gccctgagtg gattggcgat atttatcctg gtagtgggta ttctaactac 180
gatgtgaagt tcaagaacaa ggccacactg actgtagaca catcctccag cacagtttac 240
5 atccaactca gcagcctgac atctgaggac tccgcggtct attactgtgc aagagggggac 300
tatggttgcc cttttgttta ctggggccaa ggcaccacgg tcaccgtctc cagtggcggc 360
ggcggcagcg gtggtggtgg ttctgggggc ggcggcagcg acatcgagct cactcagtct 420
10 ccattctccc tgccgtgcag tcttggcgat ccagcctcca tctcttgccg ctctagtcag 480
agtcttgtag acagtaatcg cgacacctat ctgcattggt tcctgcagaa gccaggccag 540
15 tctccagagc tcctgatcta ccgcgtttcc aaccgctttt ctgggggtccc agaccgcttc 600
agtggcagtg gctcaggggac agatttcaca ctcaagatca gcagcgtgga ggctgaggat 660
ctgggcggtt atttctgttc tcaaagtaca catgttccat tcacgttcgg ctcgggggacc 720
20 aagctggaaa tcaaacgggc ggccgcaggt gcgccggtgc cgtatccgga tccgctggaa 780
ccgcgt 786

25

<210> 18

<211> 7

<212> PRT

30

<213> Homo sapiens

<400> 18

Gly Gln Asn Asp Thr Ser Gln

1

5

35